

1. A hardware configuration for implementing general packet radio services over a global system for mobile communications network comprising:

a plurality of electronic boards for providing general packet radio services

functionality;

an internal bus for providing communications between the electronic cards and within the configuration; and

an external bus for providing communications with circuits external to the configuration.

2. The hardware configuration as recited in claim 1 wherein communications over the internal bus are transmitted in compact peripheral component interconnect.

3. The hardware configuration as recited in claim 2 wherein the internal bus supports voice services.

4. The hardware configuration as recited in claim 3 wherein the internal bus supports data services.

5. The hardware configuration as recited in claim 2 wherein the external bus is a asynchronous transfer mode bus.

6. The hardware configuration as recited in claim 5 wherein the external bus is a compact peripheral component interconnect bus.

7. The hardware configuration as recited in claim 5 wherein the plurality of electronic boards comprises:

at least one single board computer for performing call control and simple network management protocol management.

**IN RE APPLICATION OF CHAKRABARTI ET AL.**

8. The hardware configuration as recited in claim 7 wherein the plurality of electronic boards comprises:

at least one channel processing card for signal processing.

9. The hardware configuration as recited in claim 8 wherein the at least one channel processing card performs at least one of voice coding, echo cancellation, and dual tone multi-frequency detection and generation.

10. The hardware configuration as recited in claim 8 wherein the at least one channel processing card comprises at least one automatic speech recognition card.

11. A general packet radio services support node for supporting general packet radio services over a global system for mobile communications network comprising:

a single board computer for providing general packet radio services functionality

which is required for each call being serviced; and

a line card processor for providing general packet radio services functionality

which is required for each packet being serviced.

12. The general packet radio services support node as recited in claim 11 wherein the general packet radio services support node functions as a serving general packet radio services support node.

13. The general packet radio services support node as recited in claim 12 wherein the single board computer supports radio resource management.

14. The general packet radio services support node as recited in claim 13 wherein the radio resource management comprises cell selection management.

15. The general packet radio services support node as recited in claim 13 wherein the radio resource management comprises call path management.

**IN RE APPLICATION OF CHAKRABARTI ET AL.**

16. The general packet radio services support node as recited in claim 13 wherein the radio resource management comprises  $U_m$  interface management.

17. The general packet radio services support node as recited in claim 12 wherein the single board computer supports authentication.

18. The general packet radio services support node as recited in claim 12 wherein the single board computer supports mobility management.

19. The general packet radio services support node as recited in claim 18 wherein the mobility management comprises line management.

20. The general packet radio services support node as recited in claim 18 wherein the mobility management comprises logical link establishment, maintenance and release.

21. The general packet radio services support mode as recited in claim 12 wherein the line card processor supports an encryption function.

22. The general packet radio services support mode as recited in claim 12 wherein the line card processor supports a compression function.

23. The general packet radio services support mode as recited in claim 12 wherein the line card processor supports one or more of routing and tunneling functions.

24. The general packet radio services support node as recited in claim 11 wherein the general packet radio services support node functions as a gateway general packet radio services support node.

**IN RE APPLICATION OF CHAKRABARTI ET AL.**

25. The general packet radio services support node as recited in claim 24 wherein the single board computer supports session management functionality.

26. The general packet radio services support node as recited in claim 24 wherein the line card processor supports address translation functionality.

27. The general packet radio services support node as recited in claim 26 wherein the line card processor supports access control functionality.

28. The general packet radio services support node as recited in claim 24 wherein the line card processor supports one or more of routing and tunneling functions.

29. A method for implementing general packet radio services over a global system for mobile communications network comprising the steps of:

providing a general packet radio services support node having first and second computing devices;

supporting general packet radio services functionality which is required for each call being serviced from the first computing device; and

supporting general packet radio services functionality which is required for each packet being serviced from the second computing device.

30. The method as recited in claim 29 wherein the first computing device is a single board computer.

31. The method as recited in claim 29 wherein the first computing device is a line card processor.

32. The method as recited in claim 29 wherein the step of providing a general packet radio services support node comprises the step of:

providing the general packet radio services support node which functions as a  
5 serving general packet radio services support node.

33. The method as recited in claim 32 wherein the step of supporting general packet radio services functionality which is required for each call being serviced comprises the step of:

10 supporting radio resource management by the first computing device.

34. The method as recited in claim 33 wherein the step of supporting general packet radio services functionality which is required for each packet being serviced comprises the step of:

15 supporting at least one of encryption, compression, routing and tunneling functions by the second computing device.

35. The method as recited in claim 29 wherein the step of providing a general packet radio services support node comprises the step of:

20 providing the general packet radio services support node which functions as a gateway general packet radio services support node.

36. The method as recited in claim 35 wherein the step of supporting general packet radio services functionality which is required for each call being serviced comprises the step of:

25 supporting session management by the second computing device.

**IN RE APPLICATION OF CHAKRABARTI ET AL.**

37. The method as recited in claim 35 wherein the step of supporting general packet radio services functionality which is required for each packet being serviced comprises the step of:

5 supporting at least one of address translation, access control, routing and tunneling functionality by the second computing device.